

TECHNICAL NOTES

1. The data contained in this report was obtained from the Tennessee Department of Health (TDH) and from records kept at the Metropolitan Nashville and Davidson County Health Department (MHD).
2. All rates in this report are incidence rates unless otherwise specified. Incidence rates within this publication are presented as the number of reported cases per 100,000 population for the year unless otherwise stated. Projected population figures used to calculate these rates were obtained from the Tennessee Department of Health and are based on data provided by the University of Tennessee Department of Sociology. Because Davidson County has very low reported incidence of some notifiable diseases, some rates may be small and unreliable and interpretation of small numbers should be done with caution.

$$\text{Incidence rate} = \frac{\text{Number of new reported cases in the year}}{\text{Number of persons at risk during the year}} \times 100,000$$

3. For planning purposes, Nashville has been divided into fourteen planning districts (PDs). They are geographical subdivisions of the county adopted many years ago by the Metropolitan Planning commission. Each planning district consists of one to sixteen 1990 census tracts.
4. The data includes only *reported* cases of notifiable disease. Because the notifiable disease reporting system is primarily a passive system, it is possible in some cases that only a portion of all notifiable diseases are actually reported. The percentage of reported notifiable diseases may vary from disease to disease. Diseases which cause the most severe clinical symptoms/illness are most likely to be reported.¹ Reporting may also be influenced by the degree of testing required for diagnosis, the availability of laboratory facilities, and the cost for testing. Increased media coverage and subsequent increased public awareness pertaining to communicable diseases may increase reporting. Finally, the initiation of active surveillance techniques by health officials may lead to improved and more accurate reporting patterns.

Beginning in 1990, MHD began a concerted effort to improve notifiable disease reporting. Notifiable disease reporting (other than sexually transmitted diseases and tuberculosis) was centralized making it easier for reporters and improving response times for disease investigation. (Previously, notifiable diseases could be reported to multiple programs within MHD.) Family practitioners, pediatricians, medical internists, and physicians specializing in communicable diseases were mailed copies of the notifiable diseases list and the telephone numbers to call to report the diseases.

During 1992, MHD personnel contacted all laboratories operating within Davidson County. Reporting guidelines for laboratories were discussed and a copy of *Regulations Governing Communicable Diseases in Tennessee* was provided to each laboratory. Protocols were established for the laboratories to report directly to MHD when a notifiable disease was identified. The American Red Cross and blood banks began to report the notifiable diseases of which they became aware during their donor screenings.

TECHNICAL NOTES (continued)

In 1993, additional staff were employed to investigate every reported notifiable disease. Outreach was made to prisons, jails, day cares, and schools to encourage timely reporting of notifiable diseases. Educational programs were offered to instruct teachers and administrators on how to identify potential communicable disease problems early, control their spread, and prevent outbreaks.

These increased surveillance activities initiated by MHD may have impacted reporting of notifiable diseases in Davidson County during the period examined in this report.

5. Factors such as changes in the case definitions for diseases, the discovery of new diagnostic tests, identification of new/emerging diseases, and changes in surveillance activities can influence disease reporting. The increases or decreases of reporting caused by these factors may be independent of the true incidence of disease.¹ Hepatitis C provides the prime example of a notifiable disease impacted by the development of a new diagnostic test and a change in surveillance activities.

A viral antibody test for hepatitis C became available in 1990 and began to be widely used in Nashville in late 1991 and 1992. However, the test was not considered absolutely reliable in determining presence of the C virus because the test generally required a long interval between the time a person developed the disease and the time when the test would identify the presence of the antibody in the blood. The "Case Definitions for Public Health Surveillance" published by the Centers for Disease Control and Prevention recommended that hepatitis C continue to be reported as hepatitis NonANonB until a more specific test for acute hepatitis C became available.² As discussed in Number 4 of these Technical Notes, laboratories in Nashville began reporting notifiable diseases directly to MHD in 1992. The combination of these two factors may have contributed to the dramatic increase in the number of reported cases of hepatitis NonANonB in Nashville in 1992.

In October of 1995 the Tennessee notifiable disease and conditions list was modified to include hepatitis C (acute) and to remove hepatitis NonANonB. In September of 1996 the case definition of hepatitis C was modified. A supplemental test to verify a positive hepatitis C antibody test was recommended. Also, persons with a positive antibody test for hepatitis C were not to be reported unless they also had symptoms of an acute illness with a discrete onset of symptoms, jaundice, and/or elevated liver enzymes.³

6. Data presented is for Davidson County residents only. Nonresidents were not included in this report even if they became ill or were diagnosed within Davidson County. Therefore, data presented in this report may not agree with data previously published by the TDH or the MHD that utilized recorded data.
7. Centers for Disease Control and Prevention case definitions were used to determine which reported diseases constituted a case and were reported to the Tennessee Department of Health. These definitions are used to standardize reporting nationally so that disease incidence may be compared with more accuracy.

TECHNICAL NOTES (continued)

8. Analysis of race information was limited in this report due to the high percentage of reported cases whose race was unknown.
9. Due to the large number of disease entities discussed in this report, the diseases were grouped into four categories to ease discussion and comparison. The categories are:
 - Gastrointestinal diseases: campylobacteriosis, *Escherichia coli*. 0157:H7, giardiasis, salmonellosis, and shigellosis.
 - Hepatitis: hepatitis A, hepatitis B, hepatitis NonANonB, and hepatitis C.
 - Other diseases: vector-borne (malaria, Lyme disease, and Rocky Mountain Spotted Fever), vaccine-preventable (measles, mumps, pertussis, tetanus, chickenpox, and influenza), and meningitis (*haemophilus influenzae* type b, meningococcal, and other bacterial).
 - Tuberculosis.
10. Chickenpox, influenza, and aseptic meningitis are reported by total number of cases only.
11. Data was analyzed using Microsoft Excel 97, Microsoft Access 97, and SAS Release 6.12. Maps were produced using Mapinfo Professional 4.0.
12. Notifiable diseases not discussed in the narrative of this report are listed and discussed in the Appendix with the exception of lead poisoning. Lead poisoning information was not available for analysis.

REFERENCES

Chapter One

- 1 Teutsch, S. M., and R.E. Churchill. Principles and Practice of Public Health Surveillance. New York: Oxford University Press, 1994.
- 2 Centers for Disease Control and Prevention. "Summary of Notifiable Diseases, United States 1996". Morbidity and Mortality Weekly Report. October 31, 1997/Vol.45/No.53.
- 3 Tennessee Department of Health and Environment. "Regulations Governing Communicable Diseases in Tennessee." 1987.

Chapter Two

- 1 "Salmonella *enteritidis* Infection". Division of Bacterial and Mycotic Diseases. National Center for Infectious Diseases. Centers for Disease Control and Prevention. 1996. Available at: <http://www.cdc.gov/ncidod/diseases/foodborn/salmon.htm>. Accessed on December 16, 1997.
- 2 American Academy of Pediatrics. 1994 Red Book. Report of the Committee on Infectious Diseases. Elk Grove Village, IL: American Academy of Pediatrics, 1994.
- 3 Benenson, Abram. Control of Communicable Diseases Manual 16th Edition. Washington D.C.: American Public Health Association, 1995.
- 4 "Preventing Foodborne Illness: *Escherichia coli* 0157:H7". Division of Bacterial and Mycotic Diseases. National Center for Infectious Diseases. Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ncidod/diseases/foodborn/e_coli.htm. Accessed on November 26, 1997.
- 5 Lindsey, James. "Chronic Sequelae of Foodborne Disease". Emerging Infectious Diseases, Vol. 3 No. 4 (1997) p. 4. Available at: <http://www.cdc.gov/ncidod/EID/vol3no4/lindsay.htm>. Accessed on November 26, 1997.

Chapter Three

- 1 Last, John, et al. Public Health and Preventive Medicine 13th Edition. Norwalk: Appleton & Lange, 1992.
- 2 Benenson, Abram. Control of Communicable Diseases Manual 16th Edition. Washington, D.C.: American Public Health Association, 1995.
- 3 "Hepatitis C." WHO Fact Sheet N 164. (1998). Available at: <http://www.who.ch/inf/fs/fact164.html>. Accessed May 14, 1998.
- 4 Worman, Howard. "The Hepatitis D Virus." (1997). Available at: <http://www.hepnet.com/hepd/wormhdv.html>. Accessed April 30, 1998.
- 5 "Viral Hepatitis F". Review of Pathology of the Liver. Available at: <http://www.meddean.luc.edu/lumen/MedED/orfpath/virhepf.htm>. Accessed on May 20, 1998.
- 6 "Hepatitis F Fact Sheet". Johns Hopkins University Division of Infectious Diseases. Available at: http://www.hopkins-id.edu/diseases/hepatitis/hfv_faq.html. Accessed on May 20, 1998.
- 7 Bisceglie, Adrian. "Hepatitis G Virus Infection: A Work in Progress". Annals of Internal Medicine, 1 November (1996). 3 pp. Available at: <http://www.acponline.org/journals/annals/01nov96/hepgedit.htm>. Accessed May 20, 1998.
- 8 "Hepatitis G Fact Sheet." Centers for Disease Control and Prevention Hepatitis Branch. (1997) Available at: <http://www2.umdj.edu/eohssweb/bbp/page005.html>. Accessed on May 20, 1998.
- 9 "Hepatitis C". American Liver Foundation. (1997). Available at: http://gi.ucsf.edu/ALF/info/hcv_fact.html. Accessed February 16, 1999.

REFERENCES (continued)

Chapter Four

- 1 Lyons, Joy. Mammoth Cave: The Story Behind the Scenery. Las Vegas, NV: KC Publications, 1991, p.40.
- 2 “What’s the Risk of Killer Bacteria and Superbugs?” Mayo Clinic Health Letter. July 1995. Available at: <http://www.mayohealth.org/mayo/9507/htm/infectio.htm>. Accessed April 20,1998.
- 3 “Epidemiology of TB.” NJMS National Tuberculosis Center. (1997) Available at: <http://www.umdnj.edu/ntbc/tidepi.htm>. Accessed on April 20, 1998.
- 4 Centers for Disease Control and Prevention. “Epidemiology of Tuberculosis, Self-study Module on Tuberculosis”. March 1995.
- 5 Centers for Disease Control and Prevention. “Morbidity and Mortality Weekly Report.” April 10, 1998/Vol.47/No.13.
- 6 Centers for Disease Control and Prevention. “Infectiousness and Infection Control, Self-study Module on Tuberculosis”. March 1995.
- 7 Centers for Disease Control and Prevention. “Transmission and Pathogenesis of Tuberculosis, Self-study Module on Tuberculosis”. March 1995.

Chapter Five

- 1 Websters Third New International Dictionary Unabridged. Springfield MA: Merriam-Webster Publishers, 1993.
- 2 Centers for Disease Control and Prevention. “Information on Lyme Disease.” Division of Vector-borne Infectious Diseases. June 1998. Available at: <http://www.cdc.gov/ncidod/dvbid/lymegem.htm>. Accessed on February 22, 1999.
- 3 Benenson, Abram. Control of Communicable Diseases Manual. Washington D.C.: American Public Health Association, 1995.
- 4 “FDA Panel Approves Lyme Vaccine.” Time.com. Available at: <http://cgi.pathfinder.com/time/daily/article/0,1344,11245,00.html>. Accessed on February 24, 1999.
- 5 Cetron, Martin, Daniel Jernigan, and Robert Breiman. “Action Plan for Drug-Resistant Streptococcus pneumoniae”. Emerging Infectious Diseases Vol. 1, No. 2. (1995). Available at: <http://emernet.emergency.com/pneumona.htm>. Accessed on August 26, 1998.
- 6 McDonald, L. Clifford, et al. “Vancomycin-Resistant Enterococci Outside the Health-Care Setting: Prevalence, Sources, and Public Health Implications”. Emerging Infectious Diseases Vol. 3,No. 3 (1997): 311 - 317.

Technical Notes

- 1 Centers for Disease Control and Prevention. “Summary of Notifiable Diseases, United States, 1996.” Morbidity and Mortality Weekly Report. October 31, 1997/Vol.45/No.53.
- 2 Centers for Disease Control and Prevention. “Case Definitions for Public Health Surveillance.” Morbidity and Mortality Weekly Report. October 19, 1990/ Vol.39/No.RR-13.
- 3 Centers for Disease Control and Prevention. “Case Definitions for Infectious Conditions Under Public Health Surveillance.” Morbidity and Mortality Weekly Report. Recommendations and Reports. May 2, 1997/46(RR10);1-55.